
# California Beverage Container Recycling

# Calendar Year 2001 Biannual Report of Beverage Container Sales, Returns, Redemption, and Recycling Rates

May 23, 2002

**Contents**

## Executive Summary

California's beverage container recycling program (Program) continues to change and grow. In January of 2000, significant changes occurred within the Program due to Senate Bill 332 (SB 332)(Chapter 815, Statutes of 1999) specifically adding noncarbonated fruit drinks, coffee and tea drinks, noncarbonated water, and sport drinks to the Program. In addition, it applied the California Redemption Value (CRV) to beverages sold in all of the seven plastic resin types. In January of 2001, Senate Bill 1906 (SB 1906)(Chapter 731, Statutes of 2000) added non-carbonated soft drinks and vegetable juices in beverage containers of 16 oz. or less.

With recent changes in the law, the sales of CRV beverage containers continue to grow. As reported last year, changes made by SB 332 along with normal growth in sales increased the total beverage container sales from 1999 to 2000 by 25 percent. Total sales for all material types exceeded 16.5 billion in 2000. In 2001, changes attributable to SB 1906 coupled with normal growth in sales resulted in a 6 percent increase over 2000 with total sales reaching 17.5 billion beverage containers.

In comparing the periods of July through December 2000 and 2001, a very positive picture is provided. In the calendar year 2000 Biannual Report, the Department reported that the overall recycling rate declined from the average experienced in the 1990s of 77 percent to 61 percent in 2000. Due to the passage of SB 332 and the resulting extensive increase in sales, a decline in recycling rates was expected, but the magnitude could not be predicted. This report provides the first comparative analysis for periods after the passage of SB 332 and it provides the first indication that the overall recycling rate decline has stabilized, and for some materials the recycling rate has begun the expected rebound.

## Background of the California Beverage Container Recycling Program

The Program is unique among the states that have a beverage container returns system. In other deposit bottle states, the cans and bottles are returned to the store from which the containers were purchased. Californians enjoy a more convenient form of container recovery with nearly 3,000 recycling opportunities statewide. The recycling system in California provides a convenient and efficient way to recycle beverage containers, and also is used as a source of non-tax dollar funding of various recycling and litter reduction programs throughout the state.

The Division of Recycling (Division), within the Department of Conservation (Department) administers the Program. The Program, enacted by the passage of the California Beverage Container Recycling and Litter Reduction Act (Act) in 1986, is aimed at making beverage container recycling integral to the California economy. The primary goal of the Program is to achieve and maintain high recycling rates for each beverage container type included in the Program, thereby reducing the beverage container component of litter in the State.

In January of 2000, significant changes occurred within the Program due to SB 332 specifically adding noncarbonated fruit drinks, coffee and tea drinks, noncarbonated water, and sport drinks to the Program. In addition, it applied the CRV to beverages sold in all of the seven plastic resin types. In January of 2001, SB 1906 added non-carbonated soft drinks and vegetable juices in beverage containers of 16 oz. or less.

The Program involves recycling centers, beverage manufacturers and distributors, retail dealers, local conservation corps, and other Program participants to ensure Californians have convenient opportunities to recycle their beverage containers. Units within the Division are responsible for participant certification and registration, regulatory compliance, grant funding distribution, as well as technical and educational assistance to other industries and groups involved in beverage container recycling.

California's beverage container recycling program now includes over 17.5 billion containers of which over 10.5 billion were returned for recycling in 2001. The CRV, the two and one-half cents consumers pay when they purchase beverages, now applies to more containers than ever before. The goal of the program is to achieve an 80 percent recycling rate for all aluminum, glass, plastic, and bimetal beverage containers sold in California.

Beverage containers covered by the Act include those filled with carbonated mineral and soda water and other similar carbonated soft drinks, noncarbonated soft drinks, wine coolers and distilled spirit coolers, beer and malt beverages, noncarbonated water including noncarbonated mineral water, sport drinks, coffee and tea drinks, vegetable juice in beverage containers 16 oz. or less, carbonated and noncarbonated fruit drinks that contain any percentage of fruit juice, and 100 percent fruit juices that are packaged in beverage containers less than 46 oz. in volume. The program does not cover any beverage container product type that is not specifically included by the Act.

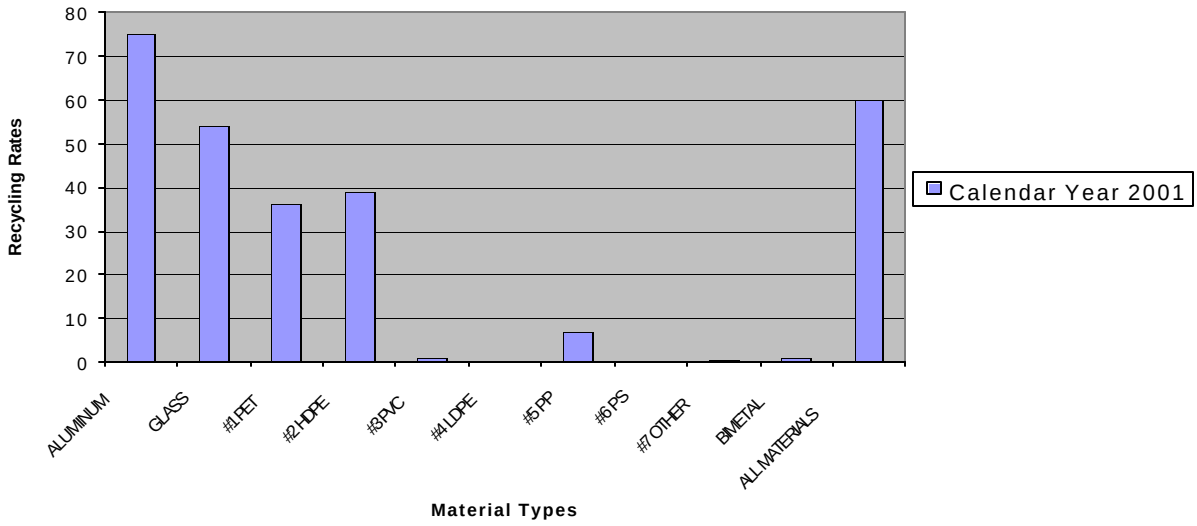
The Program is funded through redemption payments made to the Department by beverage distributors on each beverage container sold in the State. Redemption payment revenues are deposited in the California Beverage Container Recycling Fund (Fund). Payments are made out of the Fund to consumers in the form of CRV when they return empty beverage containers to certified recycling centers.

**How Information Is Gathered**

The Department is able to gather beverage container sales and returns information directly from Program participants. This information is subject to audit, and therefore very reliable in depicting the most accurate recycling rates. Sales information is gathered from distributors as they sell beverages to dealers and supermarkets. At the time these distributors report their sales information they also pay the redemption payment of two and one-half cents for each container under twenty-four fluid ounces and five cents for containers twenty-four fluid ounces or greater. Therefore, the Department is able to produce exact sales information for each type of beverage container material.

Recyclers also provide the Department with accurate information. As consumers return empty beverage containers through the various recycling systems, the recyclers get paid for the refund value they disbursed, ultimately billing the state. The information gathered from claims for payment by recyclers shows not only the amount of Program payments that are due, but also provide the detailed amounts of beverage container materials actually received. This volumetric information is stated in pounds by material type and is easily converted into container count by staff within the Department. Therefore, an accurate determination of empty beverage containers returned is available to the Department. Calculation of recycling rates is straightforward. For each material type, dividing the volume of containers returned by the volume of containers sold yields the recycling rate. The calculation is performed at least twice a year, once for the first period running from January through June and once for the second period of the year, July through December which also reflects an annual recycling rate. Chart 1. Calendar Year 2001 Recycling Rates provides the calendar year 2001 recycling rates by material type.

**Chart 1. Calendar Year 2001 Recycling Rates**




## Comparative Analysis of Sales, Returns, Postfilled and Redemption and Recycling Rates

In order to do a comparative analysis between the years 2000 and 2001, it was important to choose data that could be equitably compared. It is the Department's

practice to report sales data with a two-month sales lag, to account for the time period between when a product is sold and when it is typically returned for recycling. For example, what is used to reflect January and February sales data is actually reported to the Department by the distributors in November and December. Due to the addition of new beverages in 2000, there were no sales data in November and December 1999 for the new plastic resins #2 - #7, nor for the newly added beverages in the existing material types of aluminum, glass, #1 PET plastic and bi-metal.

Lacking sales data for January and February 2000, in 2000, the recycling and redemption rates for the calendar year were based on March through December data and those for the 2001 calendar year are based on January through December 2001. Due to varying sales and redemption patterns, the ten-month and twelve-month periods are not comparable.

Currently, the only time frames that provide a comparative analysis are July through December 2000 and 2001. These six-month periods have fewer data constraints based on changes in legislation. The two time frames are different based on changes in the definition of a beverage made effective January 1, 2001 due to the passage of SB 1906, but these impacts are minimal. Thus, in this report all comparative analyses of recycling rates will be based on the July through December of 2000 and 2001 periods.

Table 1. Changes in Sales, Returns and Rates for the July through December 2000 and 2001 Periods provides the percent change in sales and returns of CRV and postfilled containers, and the change in actual percentage points for redemption and recycling rates for the periods of July through December of 2000 and 2001.

*Table 1 – Changes in Sales, Returns and Rates for the July through December 2000 And 2001 Periods*

| | % Change Sales | % Change CRV Returns | % Change Postfilled Returns | Change in Redemption Rate Points | Change in Recycling Rate Points |
|---|---|---|---|---|---|
| Aluminum | -2% | -1% | 29% | 0 | 0 |
| Glass | 1% | 3% | 14% | 2 | 1 |
| #1 PET | 15% | 17% | 44% | 1 | 0 |
| #2 HDPE | -1% | 57% | -7% | 9 | 14 |
| #3 PVC | 23% | -12% | -47% | -1 | -1 |
| #4 LDPE | 2,271% | 3,890% | 217,228% | 1 | 0 |
| #5 PP | -8% | -95% | 101% | -21 | -22 |
| #6 PS | 140% | -56% | 423% | 0 | 0 |
| #7 OTHER | 15% | -84% | -86% | 0 | 0 |
| Bimetal | 40% | 32% | 73% | 0 | 0 |
| All Materials | 3% | 2% | 9% | 0 | 0 |

In general, the comparative analysis between the periods of July and December 2000 and 2001 provides a very positive picture. In the calendar year 2000 Biannual Report, the Department reported that the overall recycling rate declined from the average experienced in the 1990s of 77 percent to 61 percent in 2000. Due to the passage of SB 332 and the resulting extensive increase in sales, a decline in recycling rates was expected, but the magnitude could not be predicted. This report provides the first comparative analysis for periods after the passage of SB 332 and it provides the first indication that the overall recycling rate decline has stabilized, and for some materials the recycling rate has begun the expected rebound.

The comparative analysis between the periods of July and December 2000 and 2001 by material type is as follows:

**Aluminum**
Aluminum sales decreased 2 percent and returns decreased 1 percent. Postfilled container returns increased 29 percent. Redemption and recycling rates stayed the same at 70 percent.

**Glass**
Glass sales increased 1 percent and returns increased 3 percent. Postfilled container returns increased 14 percent. The redemption rate increased 2 percentage points and the recycling rate increased 1 percentage point.

**#1 PET**
PET sales increased 15 percent and returns increased 17 percent. Postfilled container returns increased 44 percent. There was a 1 percentage point increase in the redemption rate and no change in the recycling rate.

**#2 HDPE**
HDPE sales decreased 1 percent and returns increased 57 percent. Postfilled container returns decreased by 7 percent. The redemption rate increased 9 percentage points to 110 and the recycling rate increased 14 percentage points. The redemption rate rises above 100 percent when there are a large number of postfilled containers. The calculation includes not only the CRV containers that are recycled, but also a portion of the postfilled containers. Since there are nearly twice as many postfilled containers returned as CRV containers, the numerator of the equation becomes larger than the denominator, which is only CRV sales data, and you get a percentage over 100. Even though the numbers of postfilled containers decreased, there was a small decrease in sales and a large increase in returns, which drives both the recycling rate and the redemption rate higher.

**#3 PVC**
PVC sales increased by 23 percent and returns decreased by 12 percent. Postfilled container returns decreased by 47 percent. The redemption and recycling rates each decreased by 1 percentage point.

**#4 LDPE**
LDPE sales were the most changed with an increase of 2,271 percent from 440,603 containers sold to 10,445,403 containers sold. Returns increased 3,890 percent from 219 containers to 8,742 containers. Postfilled container returns increased 217,228 percent. This large increase is due to 46 postfilled containers being returned for the last half of 2000 and 101,014 being returned for 2001. The redemption rate increased 1 percentage point and the recycling rate remained the same.

**#5 PP**
PP sales decreased 8 percent and returns decreased 95 percent from 79,015 containers to 4,339 containers. Postfilled container returns increased 101 percent. With sales remaining somewhat stable, it is difficult to know why there was such a dramatic decrease in returns for this material type. This decrease also caused the redemption rate to drop 21 percentage points and the recycling rate to drop 22 percentage points.

**#6 PS**
PS sales increased 140 percent and returns decreased 56 percent. Postfilled container returns increased 423 percent. This resulted in no change in the redemption and recycling rates.

**#7 OTHER**
OTHER sales increased 15 percent and returns decreased 84 percent. Postfilled container returns decreased by 86 percent. This resulted in no change in the redemption and recycling rates.

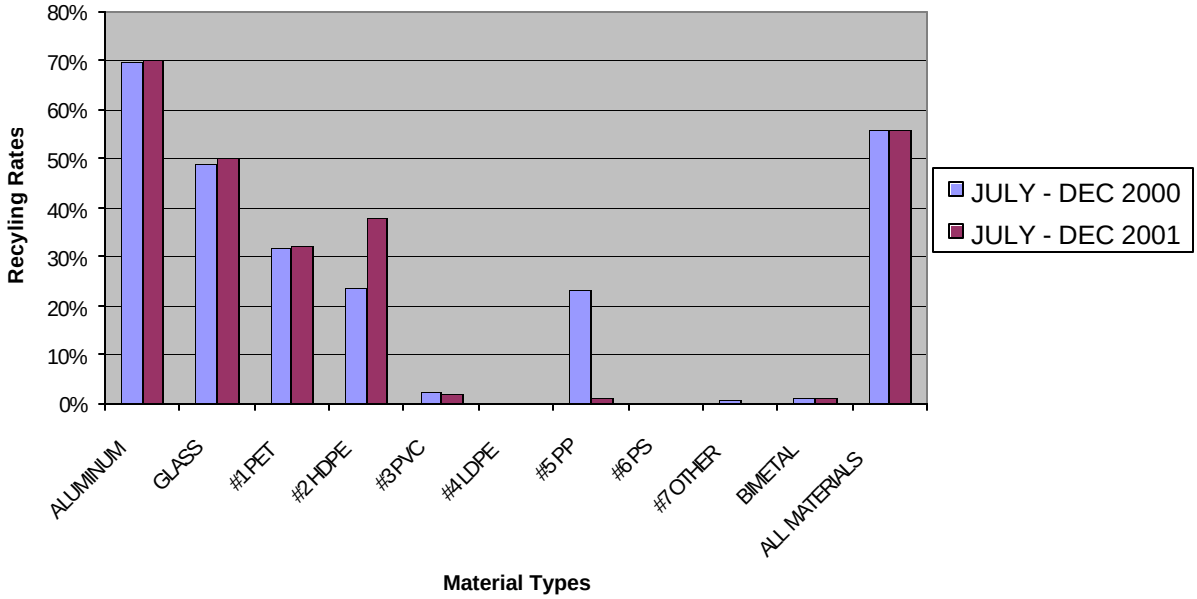
**BIMETAL**
Bimetal sales increased 40 percent and returns increased 32 percent. Postfilled container returns increased by 73 percent. This resulted in no change in the redemption and recycling rates.

**ALL MATERIALS**
All Material sales increased 3 percent and returns increased 2 percent. Postfilled container returns increased 9 percent. The biannual recycling rate for All Materials remains at 56 percent. The redemption rate also stayed the same at 58 percent.

In presenting the results in terms of percent change, it is important to provide an explanation to assist in interpretation of the data. For example, in data reported for plastics #3 through #7 there are indications of very high percentages of increase or decrease in sales, returns, and postfilled containers. Although the percentages determined may be very high, the actual numbers of beverage containers represented may be quite limited. The sales and return volumes for these material types are limited, thus any change in sales based on as little as one manufacturer changing container types or transactions of volumes that may have been stockpiled until an adequate amount was collected for efficient shipping, may have significant impacts on the percentage of change calculated.

Chart #2. Comparison of Recycling Rates for the July through December 2000 and 2001 Periods below compares the recycling rates for the July through December 2000 and 2001 periods.

**Chart 2. Comparison of Recycling Rates for the July through December 2000 and 2001 Periods**



**Participant Analysis by Material Type**

Annually the Division does an analysis of participant shares. This analysis provides the percentage of returns of CRV and postfilled material by participant type. Most material types are redeemed mainly at recycling centers except for #2 HDPE which has a larger percentage collected through curbside programs. There was a slight transition of 6.34 percentage points of CRV #2 HDPE from curbside programs to recycling centers. The only other significant change was in #4 LDPE. In 2000, nearly all of the material was collected through collection programs and in 2001 all of the material was collected at recycling centers.

Table 2. CRV Material Participant Shares Analysis illustrates the percent of redemption material collected and redeemed by participant type including recycling centers and reverse vending machines (RC/RV), Curbside Programs (CS), and Collection and Dropoff and Community Service Programs (CP/SP).

Table 2. CRV Material Participant Shares Analysis

| | ALUMINUM | GLASS | #1 PET | #2 HDPE | #3 PVC | #4 LDPE | #5 PP | #6 PS | #7 OTHER | BIMETAL |
|---|---|---|---|---|---|---|---|---|---|---|
| RC/RV | 92% | 69% | 67% | 25% | 100% | 100% | 100% | 100% | 99% | 100% |
| CS | 7% | 27% | 27% | 65% | 0% | 0% | 0% | 0% | 0% | 0% |
| CP/SP | 2% | 4% | 5% | 9% | 0% | 0% | 0% | 0% | 1% | 0% |
| | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% |

Table 3. Postfilled Material Participant Shares Analysis illustrates the percent of non-redemption material collected by participant type.

Table 3. Postfilled Material Participant Shares Analysis

| | ALUMINUM | GLASS | #1 PET | #2 HDPE | #3 PVC | #4 LDPE | #5 PP | #6 PS | #7 OTHER | BIMETAL |
|---|---|---|---|---|---|---|---|---|---|---|
| RC/RV | 56% | 11% | 20% | 2% | 100% | 100% | 100% | 100% | 100% | 100% |
| CS | 37% | 79% | 68% | 85% | 0% | 0% | 0% | 0% | 0% | 0% |
| CP/SP | 7% | 10% | 12% | 13% | 0% | 0% | 0% | 0% | 0% | 0% |
| | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% |

The primary factor illustrated by participant analysis is the impact on CRV on the mode of collection. Material that is light and easy to handle such as aluminum and has CRV, will be primarily brought to redemption centers where consumers can receive the CRV. Material that is heavier or less easy to handle such as glass, #1 PET, or #2 HDPE will have a larger component collected by donation programs such as curbside programs, collection and dropoff programs, and community service programs. In the case of postfilled material, a larger percentage is likely to be collected through donation programs.

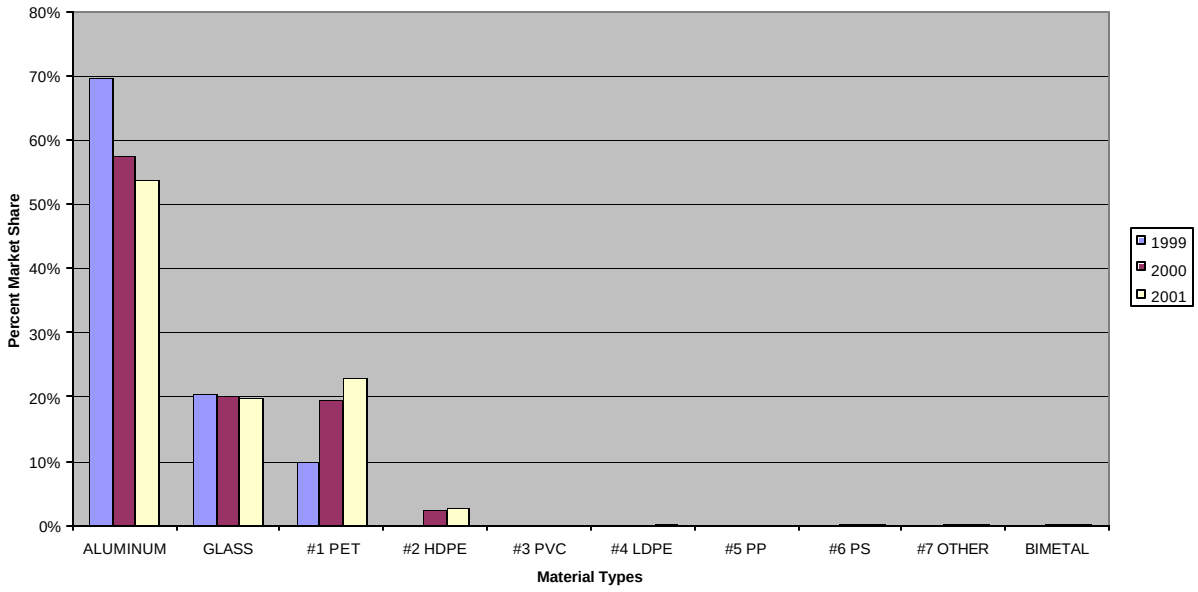
Contrary to trends in other material types, both CRV and postfilled material for plastics #3 - #7 and bi-metal are returned exclusively through redemption centers. One possible reason for this is that donation programs decide not to accept or sort this material for

redemption, so the redemption centers are the only possible source to redeem the containers.

### Changes in Market Share and its Impact on the Overall Recycling Rate

Traditionally aluminum has always had the largest market share per sales volume compared to other material types and the all material recycling rate generally followed the same trend as aluminum. However, in the past two years since the inclusion of the new beverages and new container types, we are seeing a slight drop off of aluminum market share and a slight gain in that of #1 PET. The result of this transition is that the high-recycling rate of aluminum has a reduced degree of impact on the overall recycling rate and the lower-recycling rate of #1 PET has a greater degree of impact on the overall recycling rate than it did prior to the passage of SB 332. Chart 5. Market Share of Beverage Container Sales from 1999 through 2001 illustrates a transition of market share for beverage containers from aluminum to #1 PET based on market changes and the changes in definition of a beverage container. The chart also indicates the very limited market share of all material types other than aluminum, glass, and #1 PET plastic.

**Chart 5. Market Share of Beverage Container Sales from 1999 through 2001**




### Impact of Adding Plastics #3 - #7 to the Beverage Container Recycling Program

In January of 2000, when the new beverages were added into the Program they brought with them new containers also, namely plastics #2 HDPE, #3 PVC, #4 LDPE, #5 PP, #6 PS, and #7 Other. The #2 HDPE plastic already had an established market and was being collected by many curbside programs for which they had received a scrap payment only. Adding HDPE to the Program did not require extensive adjustments to be collected. The material had a respectful recycling rate of 22 percent in 2000 which increased to 38 percent in 2001.

The plastics #3 - #7, however, had not been commonly collected previously and therefore had limited, if any, established markets. However, they are sold in limited volumes, each having less than one percent of the market share of beverage containers. Even if 100% of the #3 - #7 beverage containers sold were redeemed in 2001, it would only raise the all material recycling rate by one percentage point. Therefore, although the Department continues to work to raise awareness of the recyclability of these containers and to establish markets for them, their low recycling rates are not causing any significant reductions in the overall recycling rate.

**Departmental Actions to Increase Recycling Rates**

Following the Governor's signing of SB 332, the Department implemented a public education and outreach campaign to inform Californians about the new beverage containers included in the Program and, ultimately, raise the overall recycling rate for aluminum, glass, plastic and bimetal containers.

- The Department undertook an extensive media relations campaign in late December 1999 and early January 2000 to spread the message that the state's beverage container recycling program had been expanded. This initial media outreach campaign generated stories in most of the state's major newspapers, including the *Los Angeles Times,* the *Sacramento Bee* and the *San Jose Mercury News,* as well as many other newspapers that serve major metropolitan areas and a number of television news pieces.

- To leverage its media outreach, the Department heavily advertised its toll-free information hotline *(1-800-RECYCLE),* and its Web site *(http://www.conservation.com/dor),* to all media contacts. These sources were updated regularly to provide consumers and Program participants with the latest information on Program expansion, particularly what products were "in" or "out" of the Program. Both sources were used extensively.

- As media outreach continued statewide throughout 2001, the Department secured radio advertising in the four major media markets. A separate campaign, primarily using outdoor advertising on buses, trains, and other high-visibility venues, ran in the summer and fall of 2000. This initial campaign, carried out with existing Department staff and an existing outreach contract, served as a bridge to implementation of the $10 million public relations and advertising campaign prescribed in SB 332.

- Using the principles of social marketing, the Department seeks not only to raise awareness of recycling, but also to alter public perception and action where recycling is concerned. The campaign, which began in May of 2001, intends to establish an understanding by potential recyclers that each can and bottle deserves better than to be thrown away.

- In 2002, the Department will conduct a study to assess the primary sources for unredeemed containers. The Department has determined that nearly seven billion beverage containers were not redeemed in 2001; this new study is being developed

to determine where these containers are and what barriers may exist to redeeming them. This information will be used to target future programs to increase recycling rates.

- SB 332 added containers with limited or non-existent markets. Although these containers are a very small percent of the Program, efforts are being made to increase their recycling rates. Some curbside programs have noted concerns regarding redemption by separate plastic resins. In 2002, the Department is reviewing if current segregated and commingled rate structures create any barriers to redemption, and if so, how those barriers can be removed or reduced.

# Biannual Report of Beverage Container Sales, Returns, Redemption & Recycling Rates

*Table 1*
*May 23, 2002*

| RATES | | | CONTAINERS | | | |
|---|---|---|---|---|---|---|
| **ALUMINUM** | **Redemption** | **Recycling** | **Sales*** | **Recycled** | **Refillable** | **Postfilled** |
| JULY - DEC 2001 | 70 | 70 | 5,229,928,476 | 3,674,003,411 | 0 | 43,996,536 |
| JAN - JUNE 2001 | 80 | 80 | 4,196,752,969 | 3,362,768,981 | 0 | 31,407,467 |
| JULY - DEC 2000 | 70 | 70 | 5,330,813,136 | 3,722,519,545 | 0 | 34,015,256 |
| JAN - JUNE 2000 | 87** | 87** | 4,190,896,382 | 3,364,450,175 | 0 | 39,844,204 |
| JULY - DEC 1999 | 75 | 75 | 5,163,792,757 | 3,863,524,164 | 0 | 99,867,175 |
| **GLASS** | | | | | | |
| JULY - DEC 2001 | 57 | 50 | 1,916,863,937 | 949,198,970 | 243,260 | 184,157,045 |
| JAN - JUNE 2001 | 68 | 59 | 1,552,645,762 | 919,355,723 | 135,192 | 178,210,962 |
| JULY - DEC 2000 | 55 | 49 | 1,891,692,603 | 924,410,199 | 805,757 | 161,943,422 |
| JAN - JUNE 2000 | 71** | 64** | 1,450,598,954 | 904,082,805 | 3,388,049 | 153,268,345 |
| JULY - DEC 1999 | 66 | 56 | 1,490,073,853 | 806,448,856 | 24,853,067 | 197,823,837 |
| **#1 PET** | | | | | | |
| JULY - DEC 2001 | 33 | 32 | 2,363,231,556 | 764,118,077 | 0 | 59,509,567 |
| JAN - JUNE 2001 | 41 | 40 | 1,669,529,586 | 671,482,950 | 0 | 53,021,598 |
| JULY - DEC 2000 | 32 | 32 | 2,061,431,436 | 651,295,732 | 0 | 41,327,420 |
| JAN - JUNE 2000 | 40** | 40** | 1,177,707,564 | 530,405,334 | 0 | 32,004,919 |
| JULY - DEC 1999 | 76 | 62 | 709,331,328 | 441,439,757 | 0 | 118,824,728 |
| **#2 HDPE** | | | | | | |
| JULY - DEC 2001 | 106 | 38 | 240,794,928 | 91,189,617 | 0 | 167,668,660 |
| JAN - JUNE 2001 | 116 | 40 | 216,780,334 | 85,951,431 | 0 | 168,896,575 |
| JULY - DEC 2000 | 97 | 24 | 243,801,726 | 57,971,952 | 0 | 181,201,586 |
| JAN - JUNE 2000 | 100** | 18** | 141,389,515 | 35,271,851 | 0 | 164,586,889 |
| **#3 PVC** | | | | | | |
| JULY - DEC 2001 | 2 | 2 | 1,525,079 | 27,827 | 0 | 3,116 |
| JAN - JUNE 2001 | 1 | 1 | 1,994,685 | 23,663 | 0 | 1,056 |
| JULY - DEC 2000 | 3 | 3 | 1,235,149 | 31,609 | 0 | 5,921 |
| JAN - JUNE 2000 | 2** | 1** | 1,024,680 | 14,635 | 0 | 3,594 |
| **#4 LDPE** | | | | | | |
| JULY - DEC 2001 | 1.05 | .08 | 10,445,403 | 8,742 | 0 | 101,014 |
| JAN - JUNE 2001 | .19 | .03 | 3,620,764 | 896 | 0 | 5,850 |
| JULY - DEC 2000 | .06 | .05 | 440,603 | 219 | 0 | 46 |
| JAN - JUNE 2000 | .002** | .002** | 453,020 | 10 | 0 | 0 |
| **#5 PP** | | | | | | |
| JULY - DEC 2001 | 3 | 1 | 311,584 | 4,339 | 0 | 5,078 |
| JAN - JUNE 2001 | 15 | 15 | 202,710 | 30,383 | 0 | 1,016 |
| JULY - DEC 2000 | 24 | 23 | 338,920 | 79,015 | 0 | 2,528 |
| JAN - JUNE 2000 | 0** | 0** | 472,740 | 11 | 0 | 0 |

*(Continued on next page)*

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# Biannual Report of Beverage Container Sales, Returns, Redemption & Recycling Rates

*Table 1*
*May 23, 2002*

| RATES | | | CONTAINERS | | | |
|---|---|---|---|---|---|---|
| **#6 PS** | | | | | | |
| JULY - DEC 2001 | .04 | .01 | 33,475,821 | 1,920 | 0 | 12,955 |
| JAN - JUNE 2001 | .23 | .23 | 16,381,131 | 37,839 | 0 | 900 |
| JULY - DEC 2000 | .05 | .03 | 13,952,545 | 4,411 | 0 | 2,478 |
| JAN - JUNE 2000 | .49** | .49** | 12,409,742 | 62,122 | 0 | 803 |
| **#7 OTHER** | **Redemption** | **Recycling** | **Sales*** | **Recycled** | **Refillable** | **Postfilled** |
| JULY - DEC 2001 | .14 | .12 | 7,464,111 | 8,660 | 0 | 2,366 |
| JAN - JUNE 2001 | .55 | .33 | 3,378,467 | 11,160 | 0 | 7,746 |
| JULY - DEC 2000 | 1.06 | .84 | 6,483,173 | 54,359 | 0 | 16,824 |
| JAN - JUNE 2000 | .37** | .30** | 8,173,736 | 26,049 | 0 | 6,536 |
| **BIMETAL** | | | | | | |
| JULY - DEC 2001 | 1 | 1 | 25,472,416 | 269,414 | 0 | 79,338 |
| JAN - JUNE 2001 | 1 | 1 | 22,374,473 | 253,706 | 0 | 85,656 |
| JULY - DEC 2000 | 1.31 | 1.12 | 18,197,018 | 203,617 | 0 | 45,817 |
| JAN - JUNE 2000 | 1.21** | 1.12** | 6,896,481 | 94,152 | 0 | 17,507 |
| JULY - DEC 1999 | 14 | 14 | 1,228,143 | 170,631 | 0 | 9,067 |
| **ALL MATERIALS** | | | | | | |
| JULY - DEC 2001 | 58 | 56 | 9,829,513,311 | 5,478,830,976 | 243,260 | 455,535,674 |
| JAN - JUNE 2001 | 68 | 66 | 7,683,660,881 | 5,039,916,731 | 135,192 | 431,638,827 |
| JULY - DEC 2000 | 58 | 56 | 9,568,386,309 | 5,356,570,659 | 805,757 | 418,561,300 |
| JAN - JUNE 2000 | 72** | 70** | 6,990,022,814 | 4,834,407,144 | 3,388,049 | 389,732,797 |
| JULY - DEC 1999 | 72 | 70 | 7,364,426,081 | 5,111,583,409 | 24,853,067 | 416,524,807 |

## CALCULATION OF REDEMPTION AND RECYCLING RATES

*A = number of empty beverage containers returned*
*B = refillables returned*
*C = postfilled food or drink packaging containers returned*
*D = number of beverage containers sold*

***Redemption Rate*** $= \dfrac{A + B + [C - (0.05 \times (A + B))]}{D}$

***Recycling Rate*** $= \dfrac{(A+B)}{D}$

*(The value in brackets [ ] is included only when greater than zero.)*

| CONTAINER PER POUND RATES (CRV/POSTFILLED) | ALUMINUM | GLASS | #1 PET | #2 HDPE | #3 PVC | #4 LDPE |
|---|---|---|---|---|---|---|
| JUL - DEC 2001 | 29.4/34.19 | 1.87/1.08 | 10.4/5.92 | 5.4/5.16 | 9.9/NA | 33.2/NA |
| **CONTAINER PER POUND RATES (CRV/POSTFILLED)** | **#5 PP** | **#6 PS** | **#7 OTHER** | **BIMETAL** | | |
| JUL - DEC 2001 | 21.0/NA | 69.8/NA | 3.6/NA | 6.4/NA | | |

***FOOTNOTE:*** * *Because of the delay between the time a container is distributed for sale and the time it is returned for recycling, the Department has determined the average "return time" as two months. The sales shown reflect this lag.*

** *Due to the addition of new beverages on January 1, 2000 from the passage of SB 332, the calculation of the redemption and recycling rates was based, for this period only, on the sales and return data reported from March - June 2000. This is to account for the two month sales lag. However, the totals for the sales, recycled, refillable and postfilled columns are for January - June 2000. Due to varying sales and redemption patterns, the recycling and redemption rates for the four-month period of March through June 2000 cannot be compared with the January through June period normally reported in biannual reports.*

# CALENDAR YEAR - REDEMPTION AND RECYCLING RATES

*Table 2*
*May 23, 2002*

| *Rates* | | | *Containers* | | | *1 of 3* |
|---|---|---|---|---|---|---|
| **ALUMINUM** | **Redemption** | **Recycling** | **Sold** | **Recycled** | **Refillable** | **Postfilled** |
| 2001 | 75 | 75 | 9,426,681,445 | 7,036,772,391 | 0 | 75,404,003 |
| 2000 | 76* | 76* | 9,521,709,518 | 7,086,969,721 | 0 | 73,859,460 |
| 1999 | 80 | 80 | 9,189,990,393 | 7,348,438,576 | 0 | 155,372,430 |
| 1998 | 80 | 80 | 9,273,717,898 | 7,381,508,007 | 0 | 178,559,988 |
| 1997 | 80 | 80 | 9,192,062,677 | 7,391,944,684 | 0 | 206,552,057 |
| 1996 | 80 | 80 | 9,046,339,201 | 7,257,109,422 | 0 | 157,451,082 |
| 1995 | 84 | 84 | 8,996,915,732 | 7,565,437,626 | 0 | 293,381,456 |
| 1994 | 82 | 82 | 9,640,060,625 | 7,859,363,654 | 0 | 150,118,131 |
| 1993 | 84 | 84 | 9,473,124,532 | 7,926,540,025 | 0 | 214,496,528 |
| 1992 | 85 | 85 | 9,849,092,574 | 8,378,479,015 | 0 | 204,306,718 |
| 1991 | 85 | 85 | 9,735,460,863 | 8,235,715,915 | 0 | 170,214,314 |
| 1990 | 76 | 76 | 9,859,752,871 | 7,478,135,392 | 0 | 153,794,134 |
| 1989 | 64 | 64 | 9,231,958,871 | 5,940,283,700 | 0 | 49,407,050 |
| 1988 | 62 | 61 | 8,829,125,615 | 5,416,522,775 | 0 | 358,327,175 |
| **GLASS** | | | | | | |
| 2001 | 62 | 54 | 3,469,509,699 | 1,868,554,693 | 378,452 | 362,368,007 |
| 2000 | 60* | 54* | 3,342,291,557 | 1,828,493,003 | 4,193,806 | 315,211,767 |
| 1999 | 71 | 60 | 2,699,056,360 | 1,563,428,698 | 56,547,053 | 381,756,617 |
| 1998 | 75 | 63 | 2,547,082,395 | 1,533,478,471 | 78,152,008 | 379,486,791 |
| 1997 | 79 | 67 | 2,488,007,100 | 1,575,406,811 | 90,836,718 | 383,973,447 |
| 1996 | 82 | 69 | 2,432,063,268 | 1,574,020,543 | 102,421,509 | 400,541,247 |
| 1995 | 86 | 74 | 2,477,905,727 | 1,731,621,270 | 111,828,496 | 376,815,597 |
| 1994 | 84 | 73 | 2,554,889,789 | 1,735,423,078 | 125,310,440 | 384,421,672 |
| 1993 | 86 | 75 | 2,524,975,195 | 1,753,023,220 | 147,140,942 | 369,469,526 |
| 1992 | 95 | 72 | 2,638,669,944 | 1,718,900,206 | 168,996,240 | 718,914,546 |
| 1991 | 85 | 71 | 2,837,961,367 | 1,802,801,890 | 198,954,148 | 508,723,118 |
| 1990 | 60 | 57 | 3,252,914,365 | 1,644,555,614 | 215,792,631 | 183,272,912 |
| 1989 | 45 | 40 | 3,136,247,664 | 945,069,624 | 304,045,641 | 216,179,258 |
| 1988 | 44 | 35 | 3,165,716,125 | 664,948,766 | 441,803,396 | 324,349,294 |
| **#1 PET** | | | | | | |
| 2001 | 37 | 36 | 4,032,761,142 | 1,435,601,027 | 0 | 112,531,165 |
| 2000 | 34* | 34* | 3,239,139,000 | 1,181,701,068 | 0 | 73,332,339 |
| 1999 | 79 | 65 | 1,278,411,247 | 829,974,260 | 0 | 223,909,692 |
| 1998 | 69 | 57 | 1,284,678,834 | 731,421,805 | 0 | 193,778,325 |
| 1997 | 69 | 58 | 1,206,774,464 | 698,322,157 | 0 | 168,565,032 |
| 1996 | 69 | 59 | 1,028,068,545 | 607,521,858 | 0 | 127,904,829 |
| 1995 | 74 | 64 | 760,783,391 | 488,882,966 | 0 | 99,011,197 |
| 1994 | 80 | 71 | 605,667,834 | 429,468,272 | 0 | 77,573,604 |
| 1993 | 76 | 70 | 577,329,580 | 403,344,084 | 0 | 58,323,616 |
| 1992 | 75 | 68 | 549,907,144 | 371,540,845 | 0 | 58,814,794 |
| 1991 | 58 | 56 | 530,597,819 | 299,758,173 | 0 | 20,829,383 |
| 1990 | 31 | 31 | 558,856,452 | 171,828,692 | 0 | 8,298,647 |
| 1989 | 7 | 7 | 556,680,692 | 37,863,612 | 0 | 1,221,987 |
| 1988 | 5 | 4 | 560,093,605 | 24,327,749 | 0 | 2,971,618 |

*(Continued on next page)*

| #2 HDPE | Redemption | Recycling | Sold | Recycled | Refillable | Postfilled |
|---|---|---|---|---|---|---|
| 2001 | 110 | 39 | 457,575,262 | 177,141,048 | 0 | 336,565,235 |
| 2000 | 98* | 22* | 385,191,241 | 93,243,804 | 0 | 345,788,475 |
| **#3 PVC** | | | | | | |
| 2001 | 2 | 1 | 3,519,764 | 51,490 | 0 | 4,172 |
| 2000 | 2* | 2* | 2,259,829 | 46,244 | 0 | 9,514 |
| **#4 LDPE** | | | | | | |
| 2001 | .82 | .07 | 14,066,167 | 9,638 | 0 | 106,864 |
| 2000 | .03* | .03* | 893,623 | 228 | 0 | 47 |
| **#5 PP** | | | | | | |
| 2001 | 8 | 7 | 514,294 | 34,721 | 0 | 6,094 |
| 2000 | 10* | 10* | 811,660 | 79,025 | 0 | 2,529 |
| **#6 PS** | | | | | | |
| 2001 | .10 | .08 | 49,856,952 | 39,758 | 0 | 13,855 |
| 2000 | .25* | .25* | 26,362,287 | 66,534 | 0 | 3,281 |
| **#7 OTHER** | | | | | | |
| 2001 | .27 | .18 | 10,842,578 | 19,820 | 0 | 10,112 |
| 2000 | .67* | .54* | 14,656,909 | 80,409 | 0 | 23,362 |
| **BIMETAL** | | | | | | |
| 2001 | 1 | 1 | 47,846,889 | 523,120 | 0 | 164,993 |
| 2000 | 1* | 1* | 25,093,499 | 297,767 | 0 | 63,323 |
| 1999 | 11 | 11 | 2,270,648 | 260,797 | 0 | 15,370 |
| 1998 | 13 | 13 | 2,088,892 | 264,603 | 0 | 10,246 |
| 1997 | 19 | 19 | 2,252,193 | 432,794 | 0 | 27,375 |
| 1996 | 17 | 17 | 2,230,519 | 388,095 | 0 | 29,890 |
| 1995 | 21 | 21 | 2,268,190 | 484,539 | 0 | 21,375 |
| 1994 | 17 | 17 | 2,506,373 | 430,610 | 0 | 10,470 |
| 1993 | 19 | 19 | 3,655,432 | 683,945 | 0 | 16,945 |
| 1992 | 12 | 12 | 6,453,684 | 796,519 | 0 | 42,330 |
| 1991 | 14 | 14 | 6,353,803 | 878,207 | 0 | 59,958 |
| 1990 | 3 | 3 | 10,529,837 | 314,760 | 0 | 34,415 |
| 1989 | 2 | 2 | 10,643,975 | 199,890 | 0 | 354,570 |
| 1988 | 0.17 | 0.17 | 7,683,421 | 13,237 | 0 | 300 |

| ALL MATERIALS | | | | | | |
|---|---|---|---|---|---|---|
| 2001 | 62 | 60 | 17,513,174,192 | 10,518,747,707 | 378,452 | 887,174,501 |
| 2000 | 62* | 61* | 16,558,409,123 | 10,190,977,803 | 4,193,806 | 808,294,098 |
| 1999 | 76 | 74 | 13,169,728,648 | 9,742,102,332 | 56,547,053 | 761,054,109 |
| 1998 | 76 | 74 | 13,107,568,019 | 9,646,672,886 | 78,152,008 | 751,835,350 |
| 1997 | 78 | 76 | 12,889,096,434 | 9,666,106,446 | 90,836,718 | 759,117,911 |
| 1996 | 78 | 76 | 12,508,701,533 | 9,439,039,918 | 102,421,509 | 685,927,048 |
| 1995 | 83 | 81 | 12,237,873,040 | 9,786,426,401 | 111,828,496 | 769,229,625 |
| 1994 | 80 | 79 | 12,803,124,621 | 10,024,685,614 | 125,310,440 | 612,123,877 |
| 1993 | 82 | 81 | 12,579,084,739 | 10,083,591,274 | 147,140,942 | 642,306,615 |
| 1992 | 85 | 82 | 13,044,123,346 | 10,469,716,585 | 168,996,240 | 982,078,388 |
| 1991 | 82 | 80 | 13,110,373,852 | 10,339,154,185 | 198,954,148 | 699,826,773 |
| 1990 | 70 | 70 | 13,682,053,525 | 9,294,834,458 | 215,792,631 | 345,400,108 |
| 1989 | 56 | 56 | 12,935,531,202 | 6,923,416,826 | 304,045,641 | 267,162,865 |
| 1988 | 55 | 52 | 12,562,618,766 | 6,105,812,527 | 441,803,396 | 685,648,387 |

***Due to the addition of new beverages on January 1, 2000 from the passage of SB332, the calculation of the redemption and recycling rates for 2000 was based on the sales and return data reported from March - December 2000. This is to account for the two month sales lag. However, the totals for the sales, recycled, refillable and postfilled columns are for January - December 2000.*